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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,547	11/28/2003	Hoi-Sing Kwok	016660-189	8365

21839 7590 10/05/2005

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EXAMINER
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CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/722,547

Applicant(s)

KWOK ET AL.

Examiner

Michael H. Caley

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4, and 6-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3,5 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                               |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>05272004</u> . | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 specifies the input polarizer angle  $\alpha$  as between 35 degrees and 55 degrees relative to the cell input director and specifies the output polarizer angle  $\gamma$  as between 20 degrees and 40 degrees relative to the cell input director. Claims 15 and 16 give new angles for the input and output polarizers that contradict the specified angles of claim 5. Furthermore, the claims do not state a reference point for polarizer orientation angles. The scope of the claim is undeterminable because it is unclear whether (1:) the input director of the liquid crystal cell or (2:) the polarizer angle  $\alpha$  or  $\gamma$  of claim 5 should be used as a reference point for the limitations of claims 15 and 16. For examination purposes, the polarizer angle  $\alpha$  or  $\gamma$  is used as the reference point for the limitations of claims 15 and 16.

It is further noted that claims 15 and 16 are of improper dependent form for failing to further limit the subject matter of a previous claim.

***Election/Restrictions***

Claims 2, 4, and 6-14 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

Election was made **without** traverse in the reply filed on 7/28/05.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida et al. (U.S. Patent No. 5,796,378 “Yoshida”).**

Regarding claim 17, Yoshida discloses a liquid crystal display comprising an input polarizer, an output polarizer, and a liquid crystal cell between the input and output polarizers characterized by a twist angle, an applied voltage and a cell gap, such that:

the liquid crystal display produces an output having a color that varies in accordance with an applied voltage (Column 15 line 63 – Column 16 line 20);

the twist angle is less than 100 degrees (Column 15 line 57);

the cell gap is less than 8 microns (Column 16 line 5; Table 1).

Regarding claim 18, Yoshida discloses the  $d\Delta n$  product of the cell gap and the birefringence as no greater than 1.3 microns (Column 15 lines 58-62).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi (U.S. Patent No. 4,909,603) in view of Kanemoto et al. (U.S. Patent No. 5,175,638 “Kanemoto”).**

Taniguchi discloses a liquid crystal display comprising an input polarizer (Figure 4 element c1, Figure 1 element 34), an output polarizer (Figure 5 element c2, Figure 1 element 35), and a liquid crystal cell in between the input and output polarizers (Figure 1 element 28) characterized by a twist angle (difference between d1 and d2), a cell thickness and a birefringence of the liquid crystal, such that

the input polarizer angle is between 35 and 55 degrees relative to the input director of the liquid crystal cell (Figure 4; 45 degrees),

the output polarizer angle (Figures 4 and 5; 15 degrees) is at an angle of 45 degrees minus the twist angle of the liquid crystal cell (Figures 4 and 5; 60 degrees).

Taniguchi fails to disclose a  $d\Delta n$  product of the cell gap and birefringence. Kanemoto, however, teaches an acceptable  $d\Delta n$  product range in a display device to enable multiplexing of the driving signals while maintaining satisfactory contrast (Column 5 lines 37-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Taniguchi to have a  $d\Delta n$  product between 0.9 and 1.3 microns. One would have been motivated to form the display to enable multiplexing of the driving signals to enable a higher display resolution without an increase in signal wiring.

**Claims 5, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leenhouts (U.S. Patent No. 4,896,947) in view of Kanemoto.**

Leenhouts discloses a liquid crystal display comprising an input polarizer (Figure 1 element 5, Figure 2 element P2), an output polarizer (Figure 1 element 4, Figure 2 element P1), and a liquid crystal cell (Figure 1 element 1) in between the input and output polarizers characterized by a twist angle (Figure 1 elements 7 and 8), a cell thickness and a birefringence of the liquid crystal, such that

the input polarizer angle is between 35 and 55 degrees relative to the input direction of the liquid crystal cell (Figure 2; Column 3 lines 41-46),

the twist angle of the liquid crystal cell is between 65 and 85 degrees (Column 3 lines 32-34), and

the output polarizer angle is between 20 and 40 degrees relative to the input direction of the liquid crystal cell (Figure 2; Column 3 lines 41-51).

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Taniguchi fails to disclose the  $d\Delta n$  product of the cell gap and birefringence. Kanemoto, however, teaches an acceptable  $d\Delta n$  product range in a display device to enable multiplexing of the driving signals while maintaining satisfactory contrast (Column 5 lines 37-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Taniguchi to have a  $d\Delta n$  product between 0.9 and 1.3 microns. One would have been motivated to form the display to enable multiplexing of the driving signals to enable a higher display resolution without an increase in signal wiring.

Regarding claim 15, Leenhouts discloses the input polarizer angle as  $\alpha \pm N\pi$  where N can be any positive or negative even integer (Figure 2; Column 3 lines 41-46).

Regarding claim 16, Leenhouts discloses the output polarizer angle as  $\gamma \pm N\pi$  where N can be any positive or negative even integer (Figure 2; Column 3 lines 41-46).

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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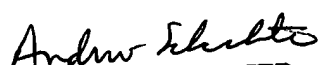
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Michael H. Caley

October 1, 2005



mhc

  
ANDREW SCHECHTER  
PRIMARY EXAMINER